

Municipality of Ribaforada, North/Central Spain

Street lighting project

Project background and objectives

Ribaforada is a municipality located in the province of Navarre in northern Spain. The municipality was interested in providing quality street lighting with LED technology. An increase in experienced companies in this field led the municipal council to move forward with the refurbishment of the public lighting system.

Project description

The municipality's aim was to improve the lighting system (installations and illumination) while achieving maximum energy efficiency and minimum maintenance costs. The EPC model was determined to be the most suitable option for the implementation of this project. An open tender was published and ESCOs were invited to submit their offers.

In 2015, a 14-year EPC contract was signed with the ESCO Rios Renovables. The contract includes the renovation of the street lighting system, energy management services, the payments for consumed electricity, preventive maintenance work according to regulations and a full guarantee on the infrastructure.

The refurbishment project has led to a significant reduction of the overall costs of the street lighting system. Electricity and maintenance costs are reduced due to the use of energy efficient and low-maintenance LED technology. Lighting management measures such as dimming allow additional energy savings.



Facts

- **Population:** 3,690 inhabitants
- **Type of streets:** 85 % residential and 15 % roads
- **ESCO:** Rios Renovables
- **Electricity cost savings:** 41,550 €/year
- **Maintenance cost savings:** 7,000 €/year
- **Reduction electricity consumption:** 548,000 kWh/year
- **CO₂ reduction:** 252 tons/year
- **Investment costs:**
 - 300,000€ (total investment)
- **EPC contract duration:** 14 years

Further information:

Escan
E-28029 Madrid, Ferrol 14
Telephone: +34-91-323-2643
E-mail: escan@escansa.com

Municipality of Ribaforada, North/Central Spain

Street lighting project

Project data	Before renovation	After renovation
Total installed electric capacity	132 kW	52 kW
Total number of lamps	871	903
Number of lighting points (luminaires)	871	903
Annual electricity consumption	691,000 kWh	143,000 kWh
Annual electricity costs	57,350 Euro	15,800 Euro
Annual maintenance costs	13,000 Euro	6,000 Euro

Results

The municipality wanted to renovate the entire streetlight and start getting benefits by 2016 at the latest. This was made possible by working with an ESCO that has wide experience with renewables and streetlight projects. Due to the company's expertise, the refurbishment took less time than if the municipality had done it themselves. Through the combination of LED technology and regulating techniques such as dimming, almost 80 % energy savings were achieved. The project benefited from the very positive collaboration between the ESCO and the local administration. Both parties agreed on a 14-year contract duration as the most suitable option in their specific situation. The municipality is satisfied with the implementation process and outcome of the project and is pleased with the quality of the lighting.

Support by the facilitation service

The facilitation service supported the municipality and ESCO in the evaluation of the feasibility of the project, lighting system advice and overall project quality. It offered feedback and guidance on technical and financing issues and on specific questions about the EPC contract. The quality of the streetlights, citizens benefiting from a better street lighting service and the reduction in costs for the municipality were key discussion topics during the project.



Photos: Escan

Municipality of Cabanillas, North/Central Spain

Street lighting project

Project background and objectives

The municipality of Cabanillas, located in the province of Navarre, decided to evaluate the feasibility and benefit of refurbishing its public lighting system. The main targets were to improve the physical state and energy efficiency of the lighting system while maintaining or even increasing the quality of the service.

Project description

Several approaches for the procurement, installation and financing of the project were analysed. The energy performance contracting model (EPC) was selected as most suitable for this situation. The selection of the ESCO was preceded by a public tender. The main criteria for the tender were the renovation and improvement of the outdoor lighting installations with maximum energy efficiency and reduction of maintenance costs. The submission from the ESCO Rios Renovables was considered the most beneficial option for the municipality and its citizens.

A 14-year EPC contract was signed and includes the energy management, payment of the energy supply, preventive maintenance and full guarantee on the infrastructure. A combination of LED technology and lighting regulation techniques permitted to achieve over 70 % energy savings and a significant reduction in maintenance costs.



Facts

- **Population:** 860 inhabitants
- **Type of streets:** 80 % residential and 20 % roads
- **ESCO:** Rios Renovables
- **Electricity cost savings:** 21,300 €/year
- **Maintenance cost savings:** 4,000 €/year
- **Reduction electricity consumption:** 249,100 kWh/year
- **CO₂ reduction:** 115 tons/year
- **Investment costs:** 170,000 €
- **EPC contract duration:** 14 years

Further information:

Escan
E-28029 Madrid, Ferrol 14
Telephone: +34-91-323-2643
E-mail: escan@escansa.com

Municipality of Cabanillas, North/Central Spain

Street lighting project

Project data	Before renovation	After renovation
Total installed electric capacity	87 kW	29 kW
Total number of lamps	450	440
Number of lighting points (luminaires)	450	440
Annual electricity consumption	343,850 kWh	94,750 kWh
Annual electricity costs	27,900 Euro	6,600 Euro
Annual maintenance costs	7,500 Euro	3,500 Euro

Results

The municipality wished to renovate the overall street lighting system in order to start getting benefits before the end of 2015. The municipality considered it crucial to contract an experienced ESCO with many references in streetlight energy efficiency and renewable energy projects. One of the benefits gained by the municipality by using the EPC model was the reduction in the timetable for the overall installation of the new system. The entire project has benefitted from the close cooperation between the ESCO and the municipality. Both parties agreed on a 14-year contract duration as the most suitable option in their specific situation. The municipality is satisfied with the implementation and project outcome as well as the lighting quality.

Support by the facilitation service

The facilitation service supported the municipality and ESCO in several steps of the project: providing advice and information on the project's feasibility and the quality of streetlight technologies. It offered feedback on technical and financing issues and on the development of the EPC contract. The quality of the streetlights, providing the citizens with an improved street lighting service and reducing costs for the municipality in the coming years were defined as key aspects of the project.



Photos: Escan

City of Santander, North/Central Spain

Street lighting project

Project background and objectives

The port city of Santander is located on the north coast of Spain. In recent years, the city of Santander has moved into the vanguard of smart cities: improving public services, developing policies oriented towards its citizens, and stimulating a new business model of productivity for the city. Integrated management allows an improvement in the efficiency and coordination of all the municipal services as well as a reduction of costs through the use of the technology.

Project description

The city undertook the ambitious project of converting the entire public lighting system - almost 23,000 lamps - to LED technology using EPC. The goals were to increase the energy efficiency of the lighting system, adapt lighting levels to traffic density and street parameters (without compromising street safety), and, overall, improve the quality of life of citizens and visitors.

An elaborate energy audit of the streetlight infrastructure was conducted. Improvement measures were identified and a Streetlight Director Plan was developed. The ESCO was selected through public tender. Criteria for the tender included, among others, improvement and maintenance of the system by the ESCO, at least 65 % guaranteed energy savings and warranty of the infrastructure. When evaluating the bids, the economic aspects were analysed only if the technical requirements were fulfilled.

The contract was awarded in 2016. Energy savings of 80 % are foreseen and will be achieved by combining new LED technology and intricate control systems.



Facts

- **Population:** 175,000 inhabitants
- **Type of streets:** 90 % residential and 10 % roads
- **ESCO:** Elecnor
- **Electricity cost savings:** 1,500,000 €/year
- **Maintenance cost savings:** 300,000 €/year
- **Reduction electricity consumption:** 17,100,000 kWh/year
- **CO₂ reduction:** 7,866 tons/year
- **Investment costs:** 11,000,000 €
- **ESCO contract duration:** 15 years

Further information:

Escan
E-28029 Madrid, Ferrol 14
Telephone: +34-91-323-2643
E-mail: escan@escansa.com

City of Santander, North/Central Spain

Street lighting project

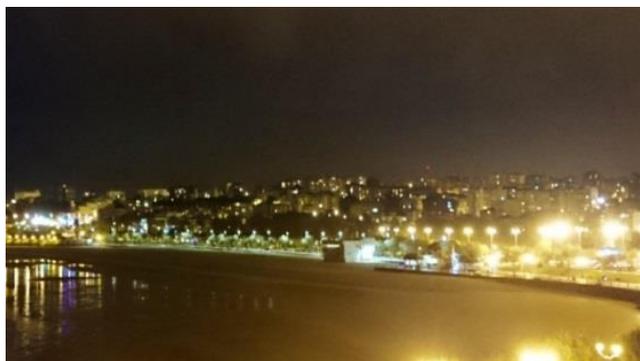
Project data	Before renovation	After renovation
Total installed electric capacity	4,509 kW	2,166 kW
Total number of lamps	22,915	22,842
Number of lighting points (luminaires)	22,700	22,700
Annual electricity consumption	21,400,000 kWh	4,300,000 kWh
Annual electricity costs	2,100,000 Euro	600,000 Euro
Annual maintenance costs	1,000,000 Euro	700,000 Euro

Results

This is one of the largest streetlight EPC projects in Spain and places Santander at the forefront of cities with large-scale energy efficient public lighting. Due to the size of the project, the overall process from the initial ideas to the signing of the EPC contract took 3 years. A 15-year contract was signed with Elecnor, an experienced ESCO in street lighting projects. 80 % energy savings will be achieved through the combination of LED technology and modern control systems that permit, for example, to dim the lighting or reduce operational hours. This project serves as a showcase example of streetlight refurbishment and will hopefully inspire other cities to follow suit.

Support by the facilitation service

The facilitation service supported the city in evaluating the feasibility of the project, conducting the viability analysis and assuring the overall quality of the project. Throughout the project, it also offered advice and guidance on technical and financial aspects, particularly regarding EPC contracting.



Before renovation



After renovation

Photos: Ayuntamiento de Santander, Escan

Lupa company, North/Central Spain

Indoor lighting project

Project background and objectives

Lupa distributes and sells food, mainly to smaller supermarkets. Environmental awareness has become more than a trend. Companies that want to gain the approval of consumers and governments have to take environmental sustainability into account and seek balance between efficiency, society's demands and nature.

Lupa realises the importance of these topics and actively contributes to sustainable development through actions that ensure environmental protection and promote social values.

Project description

In 2015, the company decided to perform an energy audit and seek professional advice on how to improve its energy efficiency. A focus was put on analysing the lighting system and monitoring the company's most significant energy needs. The technical, economic and financial aspects of lighting refurbishment were analysed in detail.

Lupa decided to convert the lighting system in its warehouse to energy-efficient LED technology using EPC. Quality criteria considered in the tendering process were: the quality of the lighting for the employees (including the level of lighting in the work plane and the absence of glare), the level of energy savings and the conditions of the warrantee offered by the manufacturer.



Facts

- **Company name:** Lupa
- **Type of lighting:** indoor lighting in a warehouse
- **ESCO:** Rios Renovables
- **Electricity cost savings:** 24,000 €/year
- **Maintenance cost savings:** 5,700 €/year
- **Reduction electricity consumption:** 370,000 kWh/year
- **CO₂ reduction:** 170 tons/year
- **Investment costs:** 95,000 €
- **EPC contract duration:** 4 years

Further information:

Escan
E-28029 Madrid, Ferrol 14
Telephone: +34-91-323-2643
E-mail: escan@escansa.com

Lupa company, North/Central Spain

Indoor lighting project

Project data	Before renovation	After renovation
Total installed electric capacity	75 kW	23 kW
Total number of lamps	339	239
Number of lighting points (luminaires)	339	239
Annual electricity consumption	530,000 kWh	160,000 kWh
Annual electricity costs	35,000 Euro	11,000 Euro
Annual maintenance costs	6,000 Euro	300 Euro

Results

The project has resulted in high quality lighting for the employees. Lighting levels were improved and glare was reduced while achieving significant electricity and maintenance cost savings. The ESCO, Rios Renovables, has completed all project steps with success. The new system has been operational since 2015.

Support by the facilitation service

The facilitation service was contacted in the context of the Streetlight-EPC project. It supported the ESCO in evaluating the feasibility of the project and performing the viability analysis. The facilitation service provided technical support in evaluating the savings potential of converting to LED technology. It also participated in disseminating the positive impacts of the project. Feedback and guidance on technical and financing issues was offered throughout the process, particularly regarding the EPC model.



Photos: Escan

Transformados Ruiz, North/Central Spain

Indoor lighting project

Project background and objectives

Transformados Ruiz is a metal processing company specialised in stainless steel products. In its production hall in the region of Navarra, Spain, latest technology is employed to achieve the high quality cuts for both large serial production and the manufacturing of single prototypes. This level of precision work requires extremely good lighting.

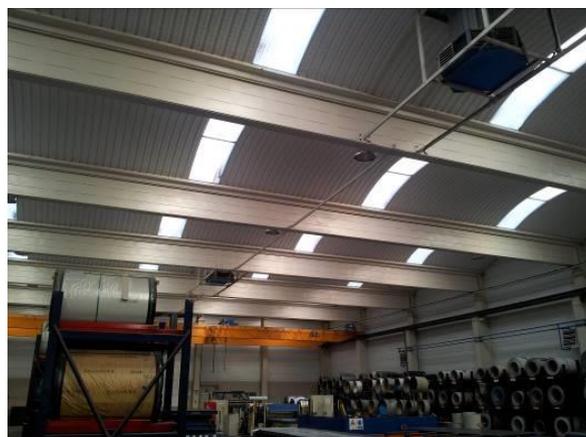
Quality, service and teamwork are among the company's highest values. Special attention is also brought to sustainability and energy efficiency matters.

Project description

The company sought advice on the possibility of improving the lighting conditions in the production hall by converting to modern LEDs. Following an energy audit, it was decided to proceed with the refurbishment using EPC with guaranteed energy savings.

A holistic approach to optimising the lighting system was employed throughout the refurbishment project. Technical, economic, financial and environmental aspects were considered. Criteria in selecting an ESCO included the quality of the lighting for the employees (e.g. illumination in the work plane and absence of glare), the overall payback time and the manufacturer's warranty on the equipment.

The refurbishment took place in 2015. Part of investment was financed by EPC. The rest was covered by a deposit from the company.



Facts

- **Company name:** Transformados Ruiz
- **Type of lighting:** Indoor lighting in a production hall
- **ESCO:** Rios Renovables
- **Electricity cost savings:** 6,300 €/year
- **Maintenance cost savings:** 500 €/year
- **Reduction electricity consumption:** 62,000 kWh/year
- **CO₂ reduction:** 28.5 tons/year
- **Investment costs:** 41,000 €
 - 41,000 € (total investment; partly financed by EPC project)
- **EPC contract duration:** 5 years

Further information:

Escan
E-28029 Madrid, Ferrol 14,
Telephone: +34-91-323-2643
E-mail: escan@escansa.com

Transformados Ruiz, North/Central Spain

Indoor lighting project

Project data	Before renovation	After renovation
Total installed electric capacity	32 kW	13 kW
Total number of lamps	72	72
Number of lighting points (luminaires)	72	72
Annual electricity consumption	85,000 kWh	23,000 kWh
Annual electricity costs	8,700 Euro	2,400 Euro
Annual maintenance costs	600 Euro	100 Euro

Results

In this industrial sector, high-precision manufacturing requires excellent lighting in the production halls. For this reason, in the tendering process, high priority was attributed to achieving a high quality lighting system for the workers. The economic aspects (investment cost and energy savings) of the applications were only considered if the technical criteria were achieved. The new lighting system has been operational since the end of 2015 and the ESCO has completed all project steps successfully. Due to dimming of the LEDs, additional energy savings are achieved.

Support by the facilitation service

The facilitation service supported the ESCO with the feasibility and viability analyses and provided technical support for evaluating the energy savings potential of LEDs. Feedback and guidance on technical and contractual aspects were offered throughout the project, especially to better the understanding of the lighting-EPC model. The facilitation service also helped disseminate the project results.



Photos: Escan